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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/615,442	07/08/2003	Masanori Konishi	33476US1	7457

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EXAMINER

JEFFERY, JOHN A

ART UNIT	PAPER NUMBER
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3742

DATE MAILED: 04/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/615,442	Applicant(s) KONISHI, MASANORI	
	Examiner John A. Jeffery	Art Unit 3742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8,9 and 11-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8,9 and 11-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/890,115.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>20030815</u> . | 6) <input checked="" type="checkbox"/> Other: <u>See Continuation Sheet</u> . |

Continuation of Attachment(s) 6). Other: English translation of DE4438870.

DETAILED ACTION

Drawing Objections

The drawings are objected to because:

Figs. 20-26: The figures must be labeled "PRIOR ART."

Figs. 11, 12, 14, 15, 17, 20, 24, 26: Each subfigure must be given a separate figure label (e.g., "Fig. 11(a)," "Fig. 11(b)," etc.) and so noted in the specification. Applicant is reminded to amend the "Brief Description of the Drawings" section to include the new figure labels.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

Claims 25 and 26 are objected to because of the following informalities:

In both claims, "substantially plate" must be changed to "substantially plate-shaped." Appropriate correction is required.

Claim Rejections - 35 U.S.C. § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 20-22 are rejected under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter which applicant(s) regard as their invention. The test for

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definiteness under 35 U.S.C. § 112, second paragraph is whether "those skilled in the art would understand what is claimed when the claim is read in light of the specification." *Orthokinetics, Inc. v. Safety Travel Chairs, Inc.*, 806 F.2d 1565, 1576, 1 USPQ2d 1081, 1088 (Fed. Cir. 1986). Here, no antecedent basis exists for "said reflection plate." The examiner presumes claims 20-22 were intended to each depend from claim 19 respectively.

Claim Rejections - 35 U.S.C. § 103(a)

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

Claims 8, 9, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE4438870 in view of Suda et al (US 6,627,144). DE4438870 discloses in Figs. 2a-2c an infrared heating lamp comprising flat heating elements 17, 18 within sealed quartz tube 21 and two embedded electrodes 36, 37 at each end of the lamp. A pair of "connection devices" 33, 34, and 31, 32 (opposite end) provide a predetermined longitudinal tension on the heating elements to account for thermal expansion and contraction. See abstract and certified English language translation

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attached to this office action. According to the English translation on page 10 (text of claim 3), the ratio of thickness to width ranges from 1:10 to 1:70.

The claims differ from DE4438870 in calling for the heating element to comprise a resistance adjustment substance. But providing resistance-varying substances in carbon-based electric heating elements is conventional and well known in the art as evidenced by Suda et al (US 6,627,144) noting col. 2, lines 2-68 and the language of claim 1 of the patent (col. 8, lines 51-59). According to col. 3, lines 12-17 and col. 7, lines 27-34, such a carbon heating element can be used in a quartz tube and generate infrared radiation. Ultimately, providing a resistance-adjusting substance enables the heating element to be designed in advance to have a desired resistance thereby easily controlling its heating output. See col. 3, lines 39-47. In view of Suda et al (US 6,627,144), it would have been obvious to one of ordinary skill in the art to provide a resistance-adjusting substance in conjunction with the carbon-based heating element of DE4438870 to enable the heating element to be designed in advance to have a desired resistance thereby easily controlling its heating output.

Claims 11, 12, 19, 20, 25, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE4438870 in view of Suda et al (US 6,627,144) and further in view of JP64-65790. The claims differ from the previously cited prior art in calling for a coaxial semi-cylindrical reflection plate. Providing reflective films on infrared heater tubes is conventional and well known in the art as evidenced by JP64-65790 noting Figs. 1 and 2 where reflective film 20 is provided to reflect infrared energy emitted from

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element 11 in a desired direction (note arrow). In view of JP64-65790, it would have been obvious to one of ordinary skill in the art to provide a coaxial reflecting plate in conjunction with the previously described apparatus to reflect infrared energy in a desired direction thereby redirecting otherwise lost infrared energy in a desired direction. Regarding claim 19, the scope and breadth of the term "reflection plate" did not preclude a reflective film.

Claims 14 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE4438870 in view of Suda et al (US 6,627,144), JP64-75690, and further in view of McCammon et al (US 3,127,112). The claims differ from the previously cited prior art in calling for the reflection plate to have an elliptical cross section. Providing elliptical reflection films on radiant heater tubes is conventional and well known in the art as evidenced by McCammon et al noting Fig. 2 where an elliptical reflection film 26 is provided to reflect IR energy to a desired point. As is well known in the art, elliptical reflectors direct energy to a point as opposed to a parabolic reflector which directs energy to a line. In view of McCammon et al, it would have been obvious to one of ordinary skill in the art to provide an elliptical reflector in conjunction with the previously described apparatus so that the infrared energy were reflected and directed to a desired point.

Claims 13 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE4438870 in view of Suda et al (US 6,627,144), JP64-65790, McCammon et al

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(US 3,127,112), and further in view of GB2133259. The claims differ from the previously cited prior art in calling for the reflector to have a parabolic cross section. While McCammon et al discloses an elliptical reflective film, as is well known in the art, elliptical reflectors direct energy to a point as opposed to a parabolic reflector which directs energy to a line. Moreover, providing a parabolic reflector in lieu of an elliptical reflector in conjunction with an electric radiant heater is well known in the art. GB2133259 on P. 1, lines 77-78 teaches that the reflector 6 can be either parabolic or elliptical as desired. In view of the well-known usage of parabolic reflectors in IR heaters to effect a desired radiant heating line pattern, it would have been obvious to one of ordinary skill in the art to provide a parabolic reflective film in lieu of an elliptical film so that the radiant energy was directed to a line instead of a point.

Claims 15 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE4438870 in view of Suda et al (US 6,627,144), JP64-65790, and further in view of Hofius, Sr. et al (US 6,041,164). The claims differ from the previously cited prior art in calling for the reflector to be opposed to the wider side portion of the heating element. While the heater of JP64-65790 is round, it is well known in the art that the wider side of a flat radiant heater element radiates maximum energy perpendicular to the wide surface. For example, Hofius, Sr. et al in Fig. 9 and col. 2, lines 37-49 teaches that maximum radiant energy is emitted from the flattened wide surfaces in a direction normal thereto (note arrows 26). In view of the well known principle of the maximum energy emission occurring normal to the flat surface as evidenced by Hofius, Sr. et al, it

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would have been obvious to one of ordinary skill in the art to orient the reflector opposed to this wider surface in the previously described apparatus so that so that the reflector reflected maximum radiant energy emitted from the flat heater, thereby improving efficiency.

Claims 16 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE4438870 in view of Suda et al (US 6,627,144), JP64-65790, and further in view of Janin et al (US 5,628,859). The claims differ from the previously cited prior art in calling for the reflector to be opposed to the narrower side of the heating element. Providing a planar heating element with the narrower side opposed to the reflector is conventional and well known in the art as evidenced by Janin et al noting Fig. 6 where planar heater 3 is disposed in the manner claimed. As seen in Fig. 6, such an arrangement enables some radiation to emanate from the edge of the heater directly onto the workpiece in addition to reflected energy from the associated reflector. In view of Janin et al, it would have been obvious to one of ordinary skill in the art to orient the reflector to oppose the narrower side of the planar heater in order to enable some radiation to emanate from the edge of the heater directly onto the workpiece in addition to reflected energy from the associated reflector.

Claims 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE4438870 in view of Dexter et al (US 6,057,532). The claims differ from DE4438870 in calling for a heat emitting block electrically connected to an end of the

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heating element. But providing heat emitting blocks disposed at the end of carbon infrared heating elements is conventional and well known in the art as evidenced by Dexter et al (US 6,057,532) noting heat-emitting carbon blocks 6, 7 in Fig. 2 that not only reduce the heat generated in the region of the electrical conductors, but also strengthen the mechanical connections. See col. 4, lines 8-25. In view of Dexter et al (US 6,057,532), it would have been obvious to one of ordinary skill in the art to provide heat emitting carbon blocks in the radiant heater of DE4438870 to not only reduce the heat generated in the region of the electrical conductors, but also strengthen the mechanical connections.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double

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patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 25-28 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3, 12-14, 17-20 of copending Application No. 10/643,218. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the instant application are merely broader in scope than the claims of the '218 application. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993).

Claims 8, 9, 17, and 18 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3, 12-14, 17-20 of copending Application No. 10/643,218 in view of Suda et al (US 6,627,144). The claims differ from the claims of the '218 application in calling for the heating element to comprise a resistance adjustment substance. But providing resistance-varying substances in carbon-based electric heating elements is conventional and well known in the art as evidenced by Suda et al (US 6,627,144) noting col. 2, lines 2-68 and the language of claim 1 of the patent (col. 8, lines 51-59). According to col. 3, lines 12-17 and col. 7, lines 27-34, such a carbon heating element can be used in a quartz tube and generate infrared radiation. Ultimately, providing a

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resistance-adjusting substance enables the heating element to be designed in advance to have a desired resistance thereby easily controlling its heating output. See col. 3, lines 39-47. In view of Suda et al (US 6,627,144), it would have been obvious to one of ordinary skill in the art to provide a resistance-adjusting substance in conjunction with the carbon-based heating element of the '218 application to enable the heating element to be designed in advance to have a desired resistance thereby easily controlling its heating output.

Claims 11, 12, 19, 20, 25, and 26 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3, 12-14, 17-20 of copending Application No. 10/643,218 in view of JP64-65790. The claims differ from the claims of the '218 application in calling for a coaxial semi-cylindrical reflection plate. Providing reflective films on infrared heater tubes is conventional and well known in the art as evidenced by JP64-65790 noting Figs. 1 and 2 where reflective film 20 is provided to reflect infrared energy emitted from element 11 in a desired direction (note arrow). In view of JP64-65790, it would have been obvious to one of ordinary skill in the art to provide a coaxial reflecting plate in conjunction with the previously described apparatus to reflect infrared energy in a desired direction thereby redirecting otherwise lost infrared energy in a desired direction. Regarding claim 19, the scope and breadth of the term "reflection plate" did not preclude a reflective film.

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Claims 14 and 22 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3, 12-14, 17-20 of copending Application No. 10/643,218 in view of in view of Suda et al (US 6,627,144), JP64-75690, and further in view of McCammon et al (US 3,127,112). The claims differ from the application claims in calling for the reflection plate to have an elliptical cross section. Providing elliptical reflection films on radiant heater tubes is conventional and well known in the art as evidenced by McCammon et al noting Fig. 2 where an elliptical reflection film 26 is provided to reflect IR energy to a desired point. As is well known in the art, elliptical reflectors direct energy to a point as opposed to a parabolic reflector which directs energy to a line. In view of McCammon et al, it would have been obvious to one of ordinary skill in the art to provide an elliptical reflector in conjunction with the previously described apparatus so that the infrared energy were reflected and directed to a desired point.

Claims 13 and 21 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3, 12-14, 17-20 of copending Application No. 10/643,218 in view of Suda et al (US 6,627,144), JP64-65790, McCammon et al (US 3,127,112), and further in view of GB2133259. The claims differ from the application claims in calling for the reflector to have a parabolic cross section. While McCammon et al discloses an elliptical reflective film, as is well known in the art, elliptical reflectors direct energy to a point as opposed to a parabolic reflector which directs energy to a line. Moreover, providing a parabolic reflector in lieu

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of an elliptical reflector in conjunction with an electric radiant heater is well known in the art. GB2133259 on P. 1, lines 77-78 teaches that the reflector 6 can be either parabolic or elliptical as desired. In view of the well-known usage of parabolic reflectors in IR heaters to effect a desired radiant heating line pattern, it would have been obvious to one of ordinary skill in the art to provide a parabolic reflective film in lieu of an elliptical film so that the radiant energy was directed to a line instead of a point.

Claims 15 and 23 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3, 12-14, 17-20 of copending Application No. 10/643,218 in view of Suda et al (US 6,627,144), JP64-65790, and further in view of Hofius, Sr. et al (US 6,041,164). The claims differ from the application claims in calling for the reflector to be opposed to the wider side portion of the heating element. While the heater of JP64-65790 is round, it is well known in the art that the wider side of a flat radiant heater element radiates maximum energy perpendicular to the wide surface. For example, Hofius, Sr. et al in Fig. 9 and col. 2, lines 37-49 teaches that maximum radiant energy is emitted from the flattened wide surfaces in a direction normal thereto (note arrows 26). In view of the well known principle of the maximum energy emission occurring normal to the flat surface as evidenced by Hofius, Sr. et al, it would have been obvious to one of ordinary skill in the art to orient the reflector opposed to this wider surface in the previously described apparatus so that so that the reflector reflected maximum radiant energy emitted from the flat heater, thereby improving efficiency.

Claims 16 and 24 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3, 12-14, 17-20 of copending Application No. 10/643,218 in view of Suda et al (US 6,627,144), JP64-65790, and further in view of Janin et al (US 5,628,859). The claims differ from the application claims in calling for the reflector to be opposed to the narrower side of the heating element. Providing a planar heating element with the narrower side opposed to the reflector is conventional and well known in the art as evidenced by Janin et al noting Fig. 6 where planar heater 3 is disposed in the manner claimed. As seen in Fig. 6, such an arrangement enables some radiation to emanate from the edge of the heater directly onto the workpiece in addition to reflected energy from the associated reflector. In view of Janin et al, it would have been obvious to one of ordinary skill in the art to orient the reflector to oppose the narrower side of the planar heater in order to enable some radiation to emanate from the edge of the heater directly onto the workpiece in addition to reflected energy from the associated reflector.

Claims 27 and 28 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3, 12-14, 17-20 of copending Application No. 10/643,218 in view of Dexter et al (US 6,057,532). The claims differ from the application claims in calling for a heat emitting block electrically connected to an end of the heating element. But providing heat emitting blocks disposed at the end of carbon infrared heating elements is conventional and well known

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in the art as evidenced by Dexter et al (US 6,057,532) noting heat-emitting carbon blocks 6, 7 in Fig. 2 that not only reduce the heat generated in the region of the electrical conductors, but also strengthen the mechanical connections. See col. 4, lines 8-25. In view of Dexter et al (US 6,057,532), it would have been obvious to one of ordinary skill in the art to provide heat emitting carbon blocks in the radiant heater of the application claims to not only reduce the heat generated in the region of the electrical conductors, but also strengthen the mechanical connections.

Other Pertinent Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Applicant should (1) separately consider the art, and (2) consider the art together with the previously cited prior art for potential applicability under 35 U.S.C. §§ 102 or 103 when responding to this action. US 056, US 904, GB 150, JP 362, US 062 disclose infrared radiators relevant to the instant invention.

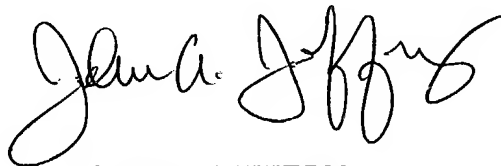
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John A. Jeffery whose telephone number is (703) 306-4601. The examiner can normally be reached on Monday - Thursday from 7:00 AM to 4:30 PM. The examiner can also be reached on alternate Fridays.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Denise Pothier, can be reached on (703) 308-0993. All faxes should be sent to the centralized fax number at (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1148.

A handwritten signature in black ink, appearing to read "John A. Jeffery". The signature is fluid and cursive, with the first name "John" being more prominent than the last name "Jeffery".

**JOHN A. JEFFERY
PRIMARY EXAMINER**

3/30/04